IN THE CLAIMS

Please amend the claims as indicated:

1. (previously presented) An apparatus for use in a borehole for electrical imaging during rotary drilling comprising:

   (a) a resistivity sensor having an offset from a wall of the borehole that is greater then a specified minimum value;

   (b) an orientation sensor making a measurement of a toolface angle of said apparatus during continued rotation thereof; and

   (c) a device which maintains said resistivity sensor at said offset.

2. (original) The apparatus of claim 1 wherein said resistivity sensor comprises a galvanic sensor.

3. (previously presented) The apparatus of claim 1 wherein said resistivity sensor is mounted on a pad.

4. (previously presented) The apparatus of claim 1 wherein said resistivity sensor is mounted on a rib.

5. (previously presented) The apparatus of claim 1 wherein said resistivity sensor is mounted on a stabilizer.

6. (previously presented) The apparatus of claim 1 wherein said resistivity sensor further comprises

(i) a current electrode which conveys a measure current into said formation through a conducting fluid, and

(ii) at least one guard electrode proximate to said current electrode for maintaining focusing of said measure current.

7. (original) The apparatus of claim 6 wherein said at least one guard electrode focuses said measure current in a direction substantially normal to said borehole wall.

8. (original) The apparatus of claim 7 wherein said at least one guard electrode surrounds said measure electrode and maintains a focusing of said measure current in a flushed zone of said formation.

9. (original) The apparatus of claim 7 wherein the at least one guard electrode comprises a plurality of guard electrodes for altering a depth of investigation of said resistivity sensor.

10. (original) The apparatus of claim 6 wherein said at least one guard electrode comprises a plurality of guard electrodes that create substantially spherical equipotential surfaces

11. (previously presented) The apparatus of claim 1 wherein said resistivity sensor further comprises:

(i) a current electrode which conveys a measure current into said formation, and

(ii) a measure electrode spaced apart from said current electrode,

the apparatus further comprising a processor which determines from a voltage of said measure electrode and said measure current an indication of a resistivity of said earth formation.

12. (original) The apparatus of claim 8 further comprising monitor electrodes to support the focusing in the presence of non negligible contact impedances.

13. (original) he apparatus of claim 9 further comprising monitor electrodes to support the focusing in the presence of non negligible contact impedances.

14. (original) The apparatus of claim 8 wherein further comprising a pad that substantially circumscribes said apparatus, said pad carrying said sensor thereon

15. (original) The apparatus of claim 14 further comprising monitor electrodes to support the focusing in the presence of non negligible contact impedances.

16. (previously presented) The apparatus of claim 8 further comprising a controller which maintains a substantially constant power consumption by said electrodes.

17. (previously presented) The apparatus of claim 12 further comprising a controller which maintains a substantially constant power consumption by said electrodes.

18. (previously presented) The apparatus of claim 14 further comprising a controller which maintains a substantially constant power consumption by said electrodes.

19. (previously presented) The apparatus of claim 14 further comprising a controller which maintains a substantially constant power consumption by said electrodes.

20. (original) The apparatus of claim 1 wherein said orientation sensor comprises a magnetometer.

21. (original) The apparatus of claim 1 wherein said orientation sensor comprises an accelerometer.

22. (original) The apparatus of claim 1 wherein said device comprises a stabilizer.

23. (original) The apparatus of claim 1 wherein said device comprises a steerable rib.

24. (original) The apparatus of claim 1 wherein said borehole is filled with a substantially nonconducting fluid and wherein said resistivity sensor is capacitively coupled to said earth formation.

25. (original) The apparatus of claim 24 wherein said resistivity sensor makes measurements at a plurality of different frequencies.

26. (original) The apparatus of claim 1 wherein said borehole includes a substantially non-conducting fluid therein.

27. (previously presented)The apparatus of claim 2 wherein said borehole includes a substantially non-conducting fluid therein and wherein said resistivity sensor conveys a measure current into said formation using capacitive coupling.

28. (original) The apparatus of claim 1 wherein said resistivity sensor further comprises a shielded dipole.

29. (original) The apparatus of claim 26 wherein said resistivity sensor further comprises a shielded dipole.

30. (original) The apparatus of claim 26 wherein said resistivity sensor further

comprises a directionally sensitive induction logging tool.

31. (original) The apparatus of claim 30 wherein said directionally sensitive induction logging tool comprises a quadrupole transmitter.

32. (original) The apparatus of claim 26 wherein said resistivity sensor further comprises a radio frequency microwave transmitter

33. (original) The apparatus of claim 26 wherein said resistivity sensor comprises an induction coil.

34 (withdrawn) A system for use in a borehole for determining a resistivity parameter during drilling of a borehole in an earth formation comprising:

(a) a bottom hole assembly (BHA) including

(i) a resistivity subassembly having a resistivity sensor with an offset from a wall of the borehole that is greater than a specified minimum value during rotation of the BHA;

(ii) an orientation sensor on said subassembly which makes a measurement of a toolface angle of said subassembly during continued rotation thereof; and

(ii) a device which maintains said resistivity sensor at said offset.

(b) a processor which determines said resistivity parameter from

measurements made by said resistivity sensor;

(c) a device which drills said borehole; and

(d) conveyance device which conveys said BHA into said borehole.

35. (withdrawn) The system of claim 34 wherein said device for drilling said borehole comprises a drill bit.

36. (withdrawn) The system of claim 34 wherein said conveyance device comprises a drill string.

37. (withdrawn) The system of claim 34 wherein said processor is part of said BHA.

38. (withdrawn)The system of claim 34 wherein said processor includes a memory device which stores at least a subset of measurements made by said resistivity sensor.

39. (withdrawn) The system of claim 34 wherein said resistivity sensor comprises a galvanic sensor.

40. (withdrawn) The system of claim 39 wherein said sensor furthercomprises

(i) a current electrode which conveys a measure current into said formation through a conducting fluid, and

(ii) at least one guard electrode proximate to said current electrode which maintains focusing of said measure current.

41. (withdrawn) The system of claim 40 wherein said processor maintains a substantially constant power consumption by said electrodes.

42. (withdrawn) The system of claim 34 wherein said orientation sensor comprises a magnetometer.

43. (withdrawn) The system of claim 34 wherein said orientation sensor comprises an accelerometer.

44. (withdrawn) The system of claim 34 wherein said device comprises a stabilizer.

45. (withdrawn) The system of claim 34 wherein said device comprises a steerable rib.

46. (withdrawn) The system of claim 34 wherein said borehole is filled with a substantially nonconducting fluid and wherein said resistivity sensor is capacitively coupled to said earth formation.

47. (withdrawn) The system of claim 46 wherein said resistivity sensor makes

measurements at a plurality of different frequencies.

48. (withdrawn) The system of claim 34 wherein said borehole includes a substantially non-conducting fluid therein and wherein said resistivity sensor conveys a measure current into said formation using capacitive coupling.

49. (withdrawn) The system of claim 34 wherein said resistivity sensor further comprises a shielded dipole.

50. (withdrawn) The system of claim 34 wherein said resistivity sensor further comprises a directionally sensitive induction logging tool.

51. (withdrawn) The system of claim 50 wherein said directionally sensitive induction logging tool comprises a quadrupole transmitter.

52. (withdrawn) The system of claim 34 wherein said resistivity sensor further comprises a radio frequency microwave transmitter

53. (withdrawn) The system of claim 34 wherein said resistivity parameter comprises a resistivity image of said borehole.

54. (withdrawn) A method of determining a parameter of an earth formation during

formation of a borehole in said earth formation by a device on a bottom hole assembly (BHA), the method comprising:

(a) maintaining a resistivity sensor on said BHA substantially at an offset from a wall of the borehole less than a specified minimum value;

(b) using said resistivity sensor for making measurements indicative of said parameter during continued rotation of said BHA;

(c) using an orientation sensor on said BHA for making a measurement of a toolface angle of said BHA during said continued rotation; and

(d) using a processor for determining from said measurements said parameter

55. (withdrawn) The method of claim 54 wherein said resistivity sensor comprises a galvanic sensor.

56. (withdrawn) The method of claim 54 further comprising mounting said resistivity sensor on a pad.

57. (withdrawn) The method of claim 54 further comprising mounting said resistivity sensor on a rib of said BHA.

58 (withdrawn) The method of claim 54 further comprising mounting said resistivity sensor on a stabilizer of said BHA.

59. (withdrawn) The method of claim 54 further comprising

(i) using a current electrode of said resistivity sensor for conveying a measure current into said formation through a conducting fluid, and

(ii) using at least one guard electrode proximate to said current electrode for maintaining focusing of said measure current.

60. (withdrawn) The method of claim 59 further comprising using said at least one guard electrode for focusing said measure current in a direction substantially normal to a borehole wall.

61. (withdrawn) The method of claim 60 wherein said at least one guard electrode surrounds said measure electrode and maintains a focusing of said measure current in a flushed zone of said formation.

62. (withdrawn) The method of claim 59 further comprising using said at least one guard electrode for creating substantially spherical equipotential surfaces

63. (withdrawn) The method of claim 54 further comprising:

(i) using a current electrode of said resistivity sensor for conveying a measure current into said formation,

(ii) measuring a voltage of a measure electrode spaced apart from said current electrode; and

(iii) using said processor for determining from a voltage of said measure electrode and said measure current said resistivity parameter.

64. (withdrawn) The method of claim 60 further comprising using monitor electrodes to support the focusing in the presence of non negligible contact impedances.

65. (withdrawn) The method of claim 61 further comprising using monitor electrodes to support the focusing in the presence of non negligible contact impedances.

66. (withdrawn) The method of claim 60 further comprising carrying said sensor on a pad that substantially circumscribes said apparatus.

67. (withdrawn) The method of claim 66 further comprising using monitor electrodes to support the focusing in the presence of non negligible contact impedances.

68. (withdrawn) The method of claim 60 further comprising using a processor for maintaining a substantially constant power consumption by said electrodes.

69. (withdrawn) The method of claim 64 further comprising using a processor for maintaining a substantially constant power consumption by said electrodes.

70. (withdrawn) The method of claim 66 further comprising using a processor for

maintaining a substantially constant power consumption by said electrodes.

71. (withdrawn) The method of claim 67 further comprising using a processor for maintaining a substantially constant power consumption by said electrodes.

72. (withdrawn) The method of claim 54 wherein said orientation sensor comprises a magnetometer.

73. (withdrawn) The method of claim 54 wherein said orientation sensor comprises an accelerometer.

74. (withdrawn) The method of claim 54 further comprising using a stabilizer for maintaining said specified offset.

75. (withdrawn) The method of claim 54 further comprising using a steerable rib for maintaining said specified offset.

76. (withdrawn) The method of claim 54 further comprising:

(i) using said BHA in a borehole is filled with a substantially nonconducting fluid, and

(ii) capacitively coupling said resistivity sensor to said earth formation.

77. (withdrawn) The method of claim 76 further comprising using said resistivity sensor for making measurements at a plurality of different frequencies.

78. (withdrawn) The method of claim 76 further comprising using said resistivity sensor for making measurements at two frequencies.

79. (withdrawn) The method of claim 77 further comprising using said processor for performing a multi-frequency focusing of said measurements.

80. (withdrawn) The method of claim 54 wherein said borehole includes a substantially non-conducting fluid therein.

81. (withdrawn) The method of claim 55 further comprising:

(i) using said BHA in a borehole is filled with a substantially nonconducting fluid, and

(ii) capacitively coupling said resistivity sensor to said earth formation

82. (withdrawn) The method of claim 54 wherein said resistivity sensor further comprises a shielded dipole.

83. (withdrawn) The method of claim 80 wherein said resistivity sensor further comprises a shielded dipole.

84. (withdrawn) The method of claim 80 wherein said resistivity sensor further comprises a directionally sensitive induction logging tool.

85. (withdrawn) The method of claim 84 wherein said directionally sensitive induction logging tool comprises a quadrupole transmitter.

86. (withdrawn) The method of claim 80 wherein said resistivity sensor further comprises a radio frequency microwave transmitter.

87. (withdrawn) The method of claim 54 further comprising using an induction coil as said resistivity sensor.

88. (withdrawn) The method of claim 87 further comprising using said processor for determining an inductance of said induction coil.

89. (withdrawn) The method of claim 86 further comprising using said processor for determining an extent of a fluid invasion of the earth formation.

90. (withdrawn) The method of claim 54 wherein said orientation sensor comprises a magnetometer

91. (new) The apparatus of claim 1 further comprising a bottomhole assembly (BHA) carrying the resistivity sensor into the borehole.

92. (new) The apparatus of claim 1 further comprising a conveyance device which conveys the resistivity sensor into the borehole.

93. (new) The apparatus of claim 91 further comprising an orientation sensor that makes measurements of an orientation of the BHA during continued rotation thereof.